

# PATENT SPECIFICATION



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157,635

Complete Left: Sept. 6, 1920.

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## PROVISIONAL SPECIFICATION.

### Improvements in Flexible Hose.

I, THOMAS REGINALD CAVE-BROWNE-CAVE, C.B.E., of Alexandra House, Kingsway, London, Wing Commander in the Royal Air Force, do hereby declare the nature of this invention to be as follows:—

This invention relates to improvements in flexible hose which is proof against petrol, benzol, and the like, and is suitable for use on airships and the like for coupling metal piping.

According to the invention, a flexible hose coupling consists of an inner seamless or jointless tube of fabric, preferably diagonally woven, surrounded by one or more layers of petrol resisting rubber, with a layer of fabric between adjacent layers of rubber if more than one, the inner tube of fabric being longer than the other layer or layers of material and being turned at its ends around the ends of such other layer or layers and back some distance over and along the outer layer, the whole being vulcanised together, and preferably coated, over the

exposed surface of the inner tube, with benzol resisting or other suitable dope.

With this construction, the ends of metallic piping to be coupled can be forced into the ends of the flexible coupling without liability of disarranging or damaging the inner fabric tube, while at the same time the inner fabric prevents any bits of rubber which may work loose in use from entering the piping.

In using the coupling, the pipe clips are preferably arranged so as to clamp over the edge of the turned back ends of the inner fabric tube.

In order to protect the coupling against fire, it may be covered by a preferably loose, jointless sleeve of asbestos cloth, preferably diagonally woven, threaded over the coupling and extending beyond its ends. The ends of this sleeve are then bound on to the adjacent ends of the metal piping to secure it in position.

Dated the 17th day of December, 1919.

A. C. DAY,  
Captain, R.A.F.,  
Agent for the Applicant.

## COMPLETE SPECIFICATION.

### Improvements in Flexible Hose.

I, THOMAS REGINALD CAVE-BROWNE-CAVE, C.B.E., of Alexandra House, Kingsway, London, Wing Commander in the Royal Air Force, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to improvements in flexible hose which is proof against

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petrol, benzol, and the like, and is suitable for use on airships and the like for coupling metal piping.

According to the invention, a flexible hose coupling consists of an inner seamless or jointless tube of fabric, preferably diagonally woven, or other flexible material other than rubber, surrounded by one or more layers of petrol resisting rubber, with a layer of fabric or other

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flexible material other than rubber between adjacent layers of rubber if more than one, the inner tube being longer than the other layer or layers and being turned at its ends around the ends of such other layer or layers and back some distance over and along the outer layer, the whole being vulcanised or moulded together and preferably coated, over the exposed surface of the inner tube, with benzol resisting or other suitable dope.

With this construction, the ends of metallic piping to be coupled can be forced into the ends of the flexible coupling without liability of disarranging or damaging the inner tube, while at the same time the inner tube prevents any bits of rubber which may work loose in use from entering the piping.

In using the coupling, the pipe clips are preferably arranged so as to clamp over the edges of the turned back ends of the inner tube.

In order to protect the coupling against fire, it may be covered by a preferably loose, jointless sleeve of asbestos cloth, preferably diagonally woven, threaded over the coupling and extending beyond its ends. The ends of this sleeve are then bound to the adjacent ends of the metallic piping or the like to secure it in position. The invention is illustrated, by way of example, in the accompanying drawings, in which:—

Fig. 1 is an elevation of a flexible hose coupling constructed according to the invention; and

Fig. 2 is a longitudinal section thereof.

The numeral, 3, indicates a long inner seamless or jointless tube of fabric or other flexible material other than rubber; 4 represents short layers of petrol resisting rubber; and 5 indicates an intermediate short layer of fabric or other flexible material other than rubber. A short layer of fabric, not shown, may be arranged around the exposed outer surface of rubber. 6 indicates the turned back ends of the tube, 4, which are made to surround all the short layers of material.

In a modification, in addition to or in lieu of employing short lengths of petrol resisting rubber or fabric in combination with the long inner tube, a short layer of flexible corrugated soft copper or other suitable solid material may be used, the corrugations extending circumferentially. The long inner tube, which may consist of a layer of asbestos, has its ends turned back over the ends of the corrugated layer

in a similar manner to that described above and shown in the drawings. Any or all of the layers composing the coupling may be corrugated in whole or in part.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. Flexible hose which is proof against petrol and the like consisting of a long inner seamless or jointless tube of fabric or other flexible material other than rubber surrounded by a short layer of resisting rubber, or alternate short layers of rubber and of fabric or other flexible material other than rubber, the long inner tube having its ends turned back over the ends of the short layer or layers of material and for some distance along the outer short layer, and the whole being secured together, substantially as described.

2. A pipe or the like joint comprising a flexible hose coupling according to Claim 1, connected at its ends to a metallic piping or the like, and wherein pipe clips are arranged to clamp over the edges of the turned back ends of the long inner tube, substantially as described.

3. A pipe or the like joint comprising a flexible hose coupling according to Claim 1 or 2, covered with a jointless sleeve of asbestos cloth threaded over the coupling and extending beyond its ends, the ends of the cover being bound on to the adjacent ends of the metallic piping or the like, substantially as described.

4. A modification of the flexible hose coupling according to Claim 1, wherein in addition to or in lieu of short lengths of rubber or fabric, a short layer of corrugated soft copper or other suitable material is used, over the ends of which the long inner tube, which may consist of a layer of asbestos, are turned back, substantially as described.

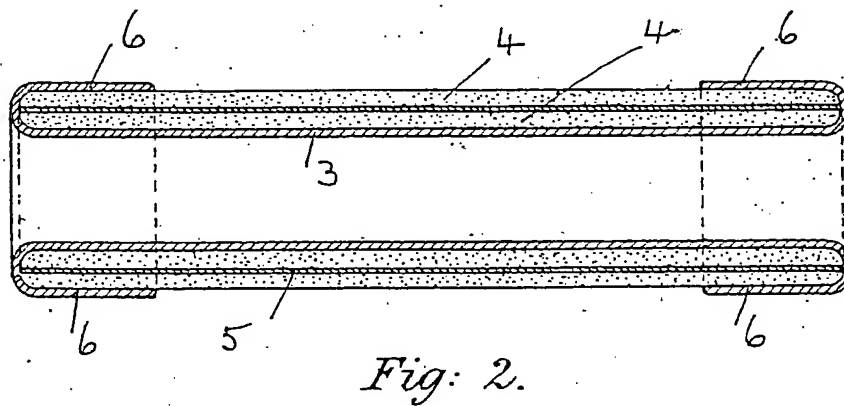
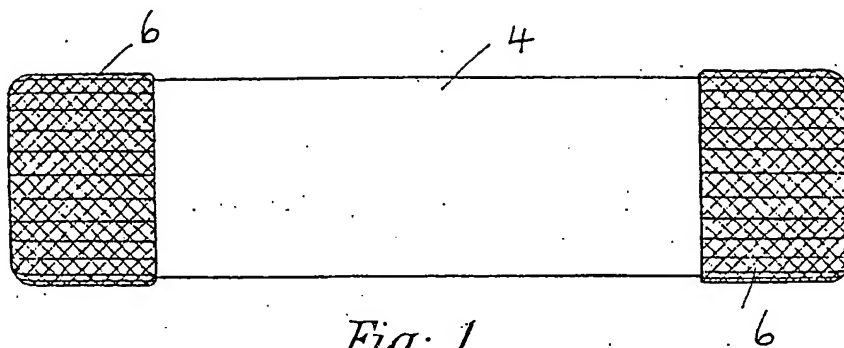
5. A flexible hose coupling according to Claim 1, wherein some or all of the layers are corrugated, substantially as described.

6. A flexible hose coupling constructed substantially as described with reference to and as shown in the accompanying drawings.

Dated this 4th day of September, 1920.

A. C. DAY,  
Captain,  
Agent for the Applicant.

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